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CHIPCO® 26019 provides unsurpassed control of major turf diseases, including: Helminthosporium Leaf Spot, Melting Out, Dollar Spot, Brown Patch, Fusarium Blight, and Red Thread. It even

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As with any crop protection chemical, always read and follow instructions on the label. CHIPCO is a registered trademark of Rhone-Poulenc.

# to green.



# ng in between.

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The natural beauty of Sun Valley, Arizona, exists without the benefit of plentiful rainfall.

## ON A DESERTED HIGHWAY

Will a 32-mile highway median in Arizona—with more than 37,000 plants, 17 million square feet of hydroseed mix and a \$2.6 million budget—attract business? You can bank on it.

**T**he Sun Valley Parkway is an unusual project in many respects.

The 32-mile, six-lane highway in the western section of metropolitan Phoenix, Arizona, is a major link in the regional transportation network. Construction of the parkway was privately funded by members of the Sun Valley Owners Association (SVOA), one of the few such projects in the country.

The parkway runs through a new 48,000-acre mixed-use development that is planned to include residential, office, commercial and industrial property. As an industrial site, the location is ideal for manufacturing and distribution centers because the parkway provides the development with easy access to major transportation routes to Southern California, Phoenix and major cities to the north and east.

Since the parkway is a major drawing card for future development, the SVOA wanted an

attractive landscape design for the parkway corridor, but because the road is to be deeded to Maricopa County, the landscape had to be frugal in its maintenance needs.

### Figuring climate

In the hot, dry, Southwest deserts, where daytime temperatures exceed 100 degrees more than 100 days each year, landscape designers are greatly challenged to find some middle ground between low maintenance requirements and high visual appeal. Major projects such as roadways seem to be an all-or-nothing proposition.

On the one side are various styles of irrigated landscapes with high installation and maintenance costs. Even when plantings have low water-use requirements, some irrigation must be provided. Because of the year-round warm weather, trees and shrubs grow rapidly and need frequent trimming and pruning.

The alternative is "desert" landscaping, a concept that for many years was interpreted with sparse plantings of cactus specimens set in a sterile expanse of granite ground cover.

Developers usually order landscapes designed with irrigation, accepting the maintenance burden as the price of an attractive property. Only in very recent years have designers and landscape contractors experimented with the full range of native plants, creating settings that blend naturally with the desert environment and manage to look attractive—without irrigation.

### The desert design

It seems obvious that desert-dwellers would have learned how to design landscapes modeled on the surrounding scenery. And yet, the Sonoran Desert around Phoenix doesn't look anything like the stony barrens that have often been created in the name of desert landscapes.



The desert is green and lush in the spring, filled with spectacularly colorful wildflowers after the winter rains. In summer, it is more subdued in color, but still shows shades of green in grasses, shrubs and cactus specimens.

In the fall, a few scattered wildflowers bloom and grasses green up following the summer monsoon rains. Most plants stay green through the brief, mild winter, with flowers and trees showing their first blooms in late January. All of this with a total of about seven inches of annual rainfall.

It is this concept of the desert that designers Pat Nash and Laura Paty of the Planting Center in Phoenix have taken as the inspiration for the Sun Valley Parkway. They used a combination of cactus specimens, native shrubs and a hydroseed mixture with native grasses and wildflowers as ground cover. Those elements helped create a design that makes full use of a broad spectrum of native plant resources without the need for irrigation.

"We are really just discovering the potential of desert plants to provide greenery and color," Paty says. "The early desert landscapes were considered a convenience, but few designers really explored the full potential of desert plants to provide beauty in a landscape design."

### Easy and safe

The design for the Sun Valley Parkway median blends easily with the surrounding desert. It has an open look that is compatible with

the spaciousness of the land around it and ideal for traffic safety.

Varieties selected are slow-growing, which will keep maintenance low. Plantings will not need irrigation once established, while seasonal color will provide visual interest.

Brittlebrush, a small, shrubby plant, starts the seasonal show with yellow flowers beginning in mid-winter. Bursage, another small shrub, provides the contrast of silvery foliage. Representative cactus varieties lend interesting shapes and bright spring color to the design.

Prickly pear cactus has round or oval pads that are green or tinged with purple. Spring blooms are bright yellow, followed by fruit that turns purplish as it matures.

The barrel cactus has a massive, round shape when young, with prominent ribs. It features a crown of yellow or magenta blossoms in the spring. Red-violet blooms top the smaller hedge-hog cactus, which grows as a cluster of cylindrical shapes.

Cholla introduces a sharp contrast in shape, producing spiny angular branches that resemble antlers.

Another striking silhouette is the yucca, a round cluster of sword-shaped leaves that puts out very tall, blooming stalks covered with green leaves and tipped with bright orange blooms after periods of rain. The leaves and blooms drop after a few weeks, leaving the branches completely bare.

The Sahuaro cactus, the tall massive type with "arms" that most people associate with the Sonoran desert, is not used here because the

median is edged with a six-inch mountable curb. With typical Sahuraos weighing in at least more than one ton, safety considerations rule out their use.

### Choosing ground cover

Instead of using granite for a ground cover, Paty selected a hydroseed mixture that includes native grasses and wildflowers. The mix will be applied at the sides of the road to restore native vegetation destroyed by road construction and protect the area from erosion. Creosote, brittlebrush, buckwheat and a variety of low-growing grasses will be used for the roadside. In the median, a slightly different mix emphasizes low-growing and

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*It has an open look that is compatible with the spaciousness of the land around it and ideal for traffic safety.*

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flowering plants, including desert marigold (gold to yellow-orange), sand verbena (purple) and dyssodia (yellow-white).

"The total effect will be natural, but the overall impression made by the landscaping is that it is a desert showcase," says Robert M. Williams, president of the SVOA. "The concept is perfect for the impact we want for Sun Valley. We have devoted a lot of effort to making the whole development compatible with the environment and at the same time convenient for the future residents and businesses that will locate here. The design of the road is based on those guidelines. This landscape has exactly the same quality."

Installation is a massive undertaking. The 32-mile median will use more than 37,000 individual plants, ranging in size from one-gallon containers to 30-inch box specimens. In the median and along the roadside, 17 million square feet of hydroseed mix will be needed. Total budget for the project, including fine grading and watering until the plantings become established, is \$2.6 million.

Landscaping of the median begins this month. The project is expected to be completed late this fall. **LM**



The Sun Valley Parkway in Arizona as it looked before undergoing a \$2.6 million facelift that includes more than 37,000 native plantings. Developers hope the landscaping will attract business to the area.

# WARM-SEASON TURF DISEASES

For best disease control, your fungicides need to be supplemented by proper fertilization and appropriate cultural practices.

by Don Blasingame, Mississippi State University



Slime molds occur during wet weather throughout the spring, summer and fall. They disappear rapidly as soon as it becomes dry. Chemical control is usually not necessary.



Nematodes will cause almost any type of symptom that can be caused by an inadequate root system. Generally, a yellowing or off-color of the foliage is the first symptom.

**T**he Sun Belt is blessed with a wide range of choices when it comes to turfgrass varieties. The dominant turf species used in this region is Bermudagrass. However, five other warm-season grasses are used extensively for turf purposes: St. Augustinegrass, zoysiagrass, centipedegrass, carpetgrass and bahiagrass.

Although most southern turf diseases are caused by fungi, agents such as bacteria, viruses and nematodes can cause serious problems to certain grasses.

Southern turf managers can't depend solely on fungicides for disease control. Good variety selection, proper fertilization and appropriate cultural practices are also very impor-

tant in disease control. No amount of fungicide will compensate for poor fertility and cultural practices.

Knowing when the most common diseases occur also will aid managers in scheduling fungicide applications (see chart). Also, environmental conditions can induce disease occurrence and severity.

Many of the agents that cause plant disease are normally in the turf (mainly in the thatch area) waiting for the right environmental conditions to develop. In general, the ideal condition for disease development would be high temperature and moisture and heavy thatch.

Fertilizers also affect disease occurrence and severity. For example,

- Low nitrogen levels increase

warm-season grasses' susceptibility to dollar spot;

- Low potash increases the severity of many turfgrass diseases, for example, Bermudagrass melting out;

- Low soil pH increases the severity of brown patch;

- Very high nitrogen levels increase the level of most of the fungal diseases of warm-season turf.

## Brown patch

Brown patch is the most common turf disease in the Southeast. Although St. Augustinegrass and zoysiagrass are the most susceptible species, even the more tolerant centipedegrass, Bermudagrass and ryegrass are frequently damaged by this fungus.

*continued on page 38*



**ANNOUNCING**

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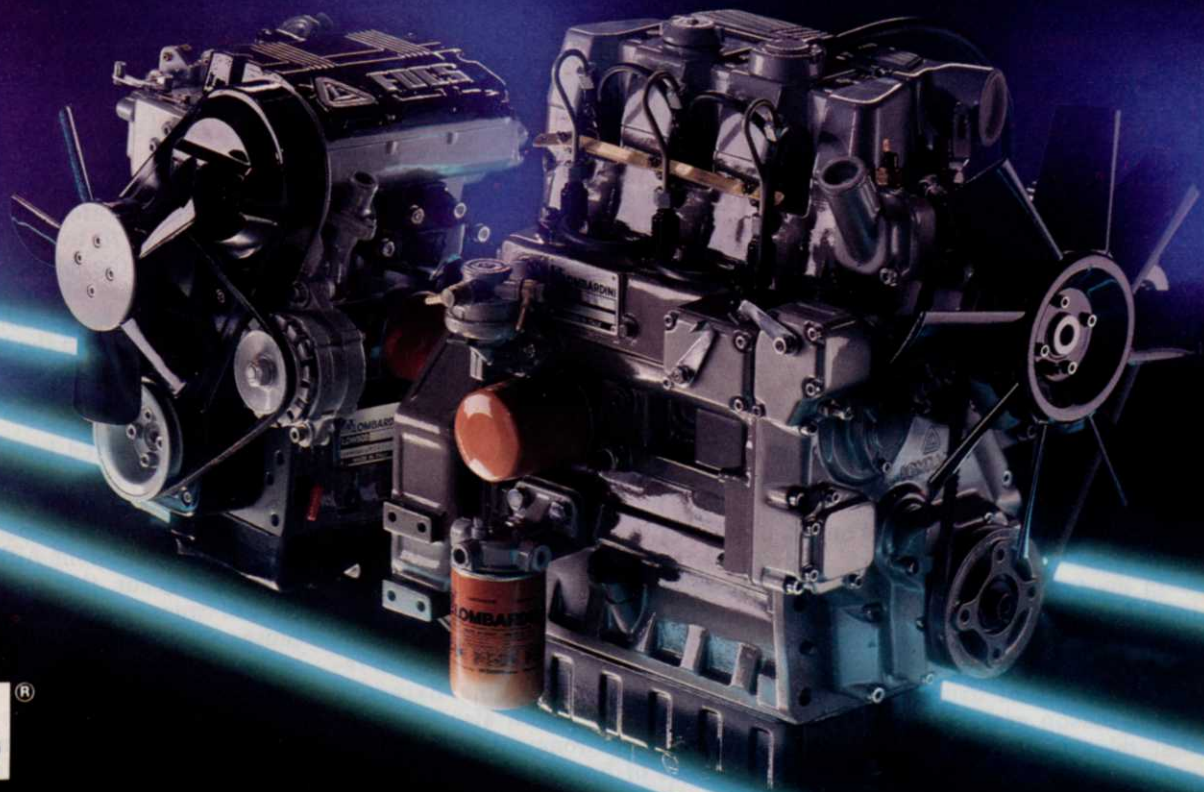
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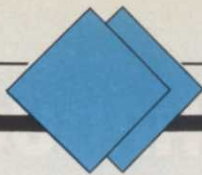
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Common Name	Some Trade Names**	Brown Patch	Dollar Spot	Gray Leaf Spot	Melting Out	Pythium Blight	Ruets	Spring Dead Spot
Anilazine	Dyrene, ProTurf fungicide III		•		•		•	
Benomyl	Benlate, Tersan 1991	•	•					•
Chloroneb	Terraneb SP, ProTurf Fungicide II					•		
Chlorothalonil	Daconil 2787 ProTurf 101V	•	•	•	•		•	
Ethazole	Koban 30, Terrazole					•		
Fenarimol	Rubigan	•	•					•
Iprodione	Chipco 26019 ProTurf, Fungicide VI	•	•		•			
Mancozeb	Fore, Tersan LSR Many Others	•			•		•	
Metalaxyl	Subdue					•		
PCNB (quintozene)	Terraclor Turfcide	•	•		•		•	
Propamocarb	Banol					•		
Propiconazole	Banner	•	•				•	•
Thiophanate-ethyl	Cleary 3336	•	•		•			
Thiophanate-methyl	Fungo 50, Proturf Systemic Fungicide	•	•					
Thiophanate-methyl + Mancozeb	Duosan	•	•		•		•	
Thiram	Thiram, Tersan 75	•	•					
Triadimefon	Bayleton, ProTurf Fungicide 7	•	•				•	
Vinclozolin	Vorlan		•		•			

\* Label approved only in selected states.  
 \*\* Combination of fungicide + fertilizer are not included.  
 No endorsement of named products by author is intended, nor is criticism implied for products not mentioned.

**Source:** Dr. Blasingame

Brown patch is favored by warm, moist weather combined with cool nighttime temperatures. Therefore, in certain areas of the South, brown patch can and does occur any month of the year.

In the South's upper regions, the most favorable conditions for brown patch development occur from late April through mid-October.

Symptoms of brown patch on warm-season grasses are different than the symptoms of the disease on cool-season turf. Even though the grass is usually killed in a circular pattern, many times the smoke ring is not seen on southern turf.

Under certain conditions the fungus may cause a gradual thinning of the turf over a rather large area

instead of killing in a circular pattern.

Several factors tend to make the grass more susceptible to brown patch. One is applying too much nitrogen fertilizer. The resulting lush growth is readily attacked. Delay nitrogen applications when disease conditions are favorable.

Another is watering late in the afternoon and allowing the grass to remain wet for a long time. Excessive thatch accumulation also creates a favorable environment for the development of brown patch and many other diseases.

Fungicides are best used on a preventive schedule (see Fungicide Guide). Once symptoms develop, control can be difficult.

Dollar spot is common on Bermu-

dagrass, zoysiagrass and annual and perennial bluegrasses. Symptoms of dollar spot are different on certain warm-season grasses than on cool-season grasses.

On finer textured grasses such as Bermudagrass and zoysiagrass, the disease kills grass in small patches two to three inches in diameter. Under severe conditions, these patches may coalesce so that the turf has a mottled appearance. Blades of grass at the outer edges of the infected area develop tan spots with reddish-brown margins.

On coarser warm-season grasses, turf is killed in larger patches ranging up to a foot in diameter.

Dollar spot is prevalent during mild weather in the spring and fall. Unlike brown patch, dollar spot is retarded by high nitrogen levels. Still, turf managers should consider the impact of high nitrogen on brown patch and other diseases. You should water only in the early morning so the foliage can dry quickly. Fungicides can be used to help bring the disease under control once it gets established.

## Leaf spot

A number of fungi cause leaf spots on many southern grasses. Regardless of the causal agent, leaf spots and their control on southern grasses are similar.

Melting out (*Bipolaris* spp.) — Bermudagrass and ryegrass are more severely affected by these infections, although the fungus can survive on centipedegrass and St. Augustinegrass.

Infection can occur over a wide range of temperature, but usually is more severe at 70 to 95° F. Milder temperatures in the spring and fall are more favorable for infection.

Melting out causes small, dark-colored spots or flecks on the leaves and sheaths. Leaf spots are usually more numerous near the collar of the leaf blades.

Severely affected leaves wither and die, and the turf frequently becomes brown and thin.

Symptoms on overseeded ryegrass are altogether different. Although leaf spots may occur, this same melting out can cause severe crown rot. This causes a yellowing and discoloration of the grass and a general thinning of the turf.

Fertilize with adequate levels of nitrogen and potassium if melting out diseases become a problem. With careful management, apply fungicides recommended for melting out blight control.

Gray leaf spots: St. Augustinegrass is the primary host for gray leaf spot.

*continued on page 40*





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## Major Diseases of Warm Season Turf\*



\* The calendar gives the normal time for turf diseases to occur. However, they may occur at other times depending upon environmental conditions.

- 1 - Dollar spot affects overseeded turf as well as warm season grasses.
- 2 - Rust does affect overseeded grasses but is most common on zoysiagrass.
- 3 - Pythium blight is most damaging on overseeded turf but can cause damage to warm season turf especially during "transition" periods.
- 4 - Most warm season grasses are affected by certain leaf spots. For example: gray leaf spot of St. Augustine and the helminthosporium complex on bermudagrass.

Source: Dr. Blasingame

The disease occurs throughout the lower South during warm, humid weather.

Spots on the leaf blades are the most visible, but sheath and stem lesions also occur. Leaf spots begin as olive green to brown, water-soaked spots as small as a pinhead. These enlarge rapidly and form a circular to elongated lesion that is brown- to ash-colored with purple margins. The disease occurs during moderate to warm weather accompanied by high relative humidity. Severity of the disease is enhanced by applications of nitrogen fertilizer. It is more a problem in shaded areas where the grass remains wet from dew.

Treatment with a fungicide may become necessary if the disease outbreak is severe and accompanied by prolonged periods of wet favorable weather. The fungicides chlorothalonil and mancozeb have been found to be effective in controlling gray leaf spot.

### Rust

Rust of *Puccinia* species infect ryegrass, zoysiagrass, bluegrass, fescue, Bermudagrass and St. Augustinegrass. Zoysiagrass and bluegrass are the most often infected

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